

Serial No.: 09/858,098
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Examiner: Hung Nhat Ngo

REMARKS

Claims 1 through 15 remain in this application. Claims 1, 2, 3, and 5 through 11 have been amended.

Claim Rejections under 35 U.S.C. 103(a)

The Office Action rejected claims 1 through 15 under 35 U.S.C. 103(a) as being unpatentable over US published application No. 2003/0156317 to Ruhl et al. (the Ruhl application). However, the Ruhl application fails to teach or suggest the requirements of the claims.

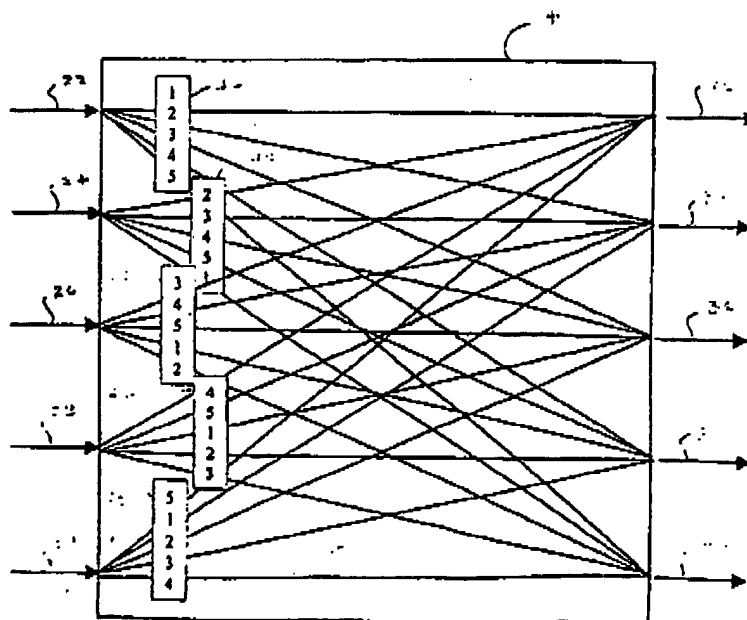
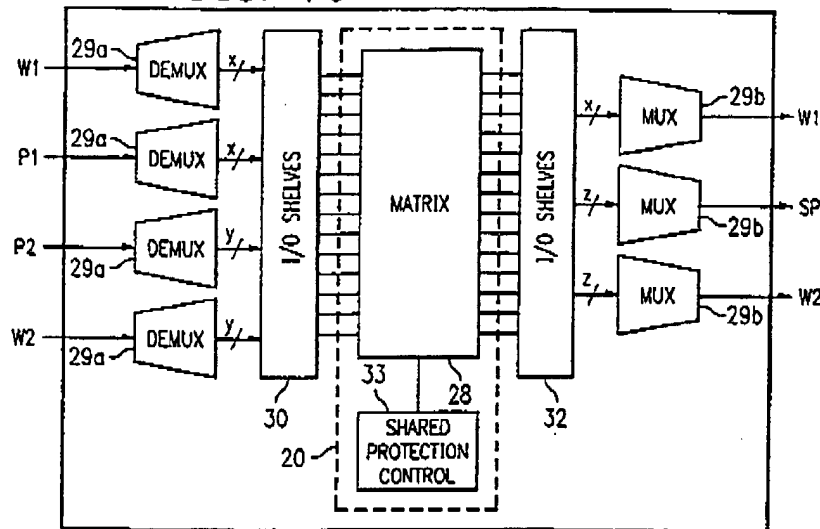
Independent Claim 1 and dependent claims 2 through 8

Independent Claim 1 requires a pair of network elements; two or more working fibers coupled between said pair of network elements for carrying communications traffic between said pair of network elements, each working fiber carrying said communications traffic over a plurality of channels associated with one or more rings; a shared protection fiber coupled between said network elements, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers; wherein said network elements include circuitry for concurrently switching communication traffic on rings associated with different working fibers to respective channels of said shared protection fiber. As shown in Figure 4 and explained at paragraphs 26 and 27 of the application, each pair of adjacent optical network elements 23 are connected by a pair of working lines 16 and a pair of protect lines 18, except between network elements 12a and 12b. Between network elements 12a and 12b, there are two pairs of working fibers 16ab1 and 16ab2. However, there is only one pair of protection fibers 18ab. The one pair of protection fibers 18ab is shared between the two rings. Network elements 12a and 12b may switch any channel or group of channels from any of the associated working spans (working spans 16fa and 16ja for network element 12a and working spans 16bc and 16bg for network element 12b) or from any of the associated protection spans (protection

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spans 18fa and 18ja for network element 12a and protection spans 18bc and 18bg for network element 12b) to any available channel on the shared protection fibers 18ab. An example of a network element for supporting shared protection lines is shown in Figure 10. As seen below in one of the possible configurations of the invention illustrated in Figure 10, two working spans and two associated protect spans are at the input while there are two working spans and a shared protection span at the output.

FIG. 10 9/10



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In contrast, the Ruhl reference fails to disclose, *inter alia*, the requirements of claim 1 of a shared protection fiber coupled between said network elements, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers; wherein said network elements include circuitry for concurrently switching communication traffic on rings associated with different working fibers to respective channels of said shared protection fiber. The Ruhl reference does not describe a shared protection fiber between the two network elements. As seen in Figure 2 and described in paragraph 27 of the Ruhl application, there is no shared protection fiber as required by claim 1. In addition, Figure 4 of the Ruhl application illustrates a same number of input fibers as output fibers in its network element 4 connecting two rings. Thus, the Ruhl reference nowhere describes network elements that include circuitry for concurrently switching communication traffic on rings associated with different working fibers to respective channels of said shared protection fiber.

Independent Claim 9 and dependent claims 10 through 15

Independent Claim 9 requires interface circuitry for coupling to two or more incoming working fibers and two or more respective incoming protection fibers, each of said working fibers operable to carry communications traffic over a plurality of channels associated with one or more rings; and switching circuitry for concurrently coupling channels from different incoming protection fibers to a shared protection fiber, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers.

The Ruhl reference fails to disclose, *inter alia*, the requirements of claim 9 of switching circuitry for concurrently coupling channels from different incoming protection fibers to a shared protection fiber, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers. The Ruhl reference does not describe a shared protection fiber between the two network elements. As seen in Figure 2 and described in paragraph 27 of the Ruhl application, there is no shared protection fiber as required by claim 1. In addition, Figure 4 of the Ruhl application illustrates a same number of input fibers as output fibers in its network element connecting two rings. Thus, the Ruhl reference nowhere

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describes switching circuitry for concurrently coupling channels from different incoming protection fibers to a shared protection fiber, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers.

The Office Action states that, "it is well known in the art to provide protection channels (wavelengths) in excess of the number of channels (wavelengths) of a working span so that in the event failure occurred in working spans, there will be enough protection channels (wavelengths) to replace the working channels (wavelengths). However, the Office Action cites no references illustrating such "well known" prior art. We respectfully disagree that the requirements of claim 9 are not well known in the prior art, and it is respectfully requested that prior art showing the requirements of claim 9 be shown, i.e. "interface circuitry for coupling to two or more incoming working fibers and two or more respective incoming protection fibers, each of said working fibers operable to carry communications traffic over a plurality of channels associated with one or more rings; and switching circuitry for concurrently coupling channels from different incoming protection fibers to a shared protection fiber, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers."

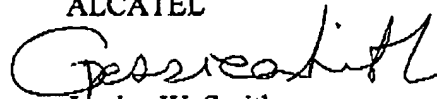
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Conclusion

For the above reasons, the foregoing amendment places the Application in condition for allowance. Therefore, it is respectfully requested that the rejection of the claims be withdrawn and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 477-9109.

Respectfully submitted,

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